

XIII. FAUNA SYMBIOTICA INDICA.

INTRODUCTORY NOTE.

The following papers are the first in a series that I propose to publish as occasion offers. It will deal with Indian animals of different species found living together in a manner that apparently implies something more than fortuitous concurrence. Such relations actually range in an almost unbroken chain from parasitism on the one hand through commensalism to temporary, if not accidental association on the other. In these days of extreme specialization in systematic zoology, it is perhaps just as well that, even in describing new species, attention should be called not only to their taxonomic position but also to their bionomics. Many of the species described in this series will be Polyzoa or Cirripedia, but I do not pledge myself to restrict my investigations to any particular group or groups of animals and I hope to have the help of specialists from time to time.

N. A.

No. I.—POLYZOA ATTACHED TO INDO-PACIFIC STOMATOPODS.

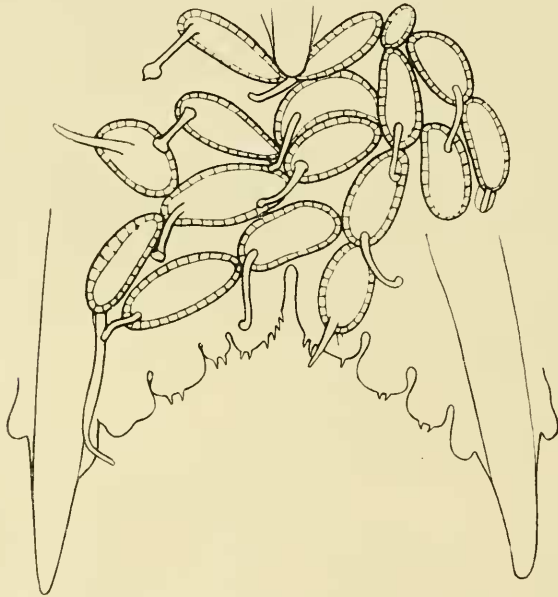
By N. ANNANDALE, D.Sc., F.A.S.B., Superintendent of the Indian Museum.

A biological feature of the Stomatopoda which they share to some extent, at any rate in Indian seas, with the Decapoda Natantia and Anomoura, is the rarity with which other living organisms are attached to any part of their body. In this respect they are in strong contrast with the crabs and Reptantia, which in a large proportion of cases have small Cirripedia (usually species of *Dichelaspis* or *Poecilasma*) attached to the gills, even when the external surface is quite clean. In the collection of Stomatopoda belonging to the Indian Museum, or at present on loan in Calcutta, Mr. Kemp and I have not succeeded in finding more than half a dozen instances of sessile organisms being attached to any part of the animal.

In the case of a *Squilla*, unfortunately not identified, from the Bay of Bengal a few immature barnacles of the genus *Dichelaspis* (probably *D. warwickii*) were found attached to the pleopods, while on the dorsal surface of the carapace and abdomen of an example of *Squilla holoschista* from S. India there are several small *Balani* which I have not yet been able to identify. Mr. H. B. Preston is describing in this part of our

“Records” a peculiar mollusc taken on an Indian species of *Gonodactylus* (p. 126, *postea*).

In two instances only (one instance embracing two individuals of the Stomatopod) did we find polyzoa on the integument, and in none did we come across Hydroids or other Coelenterates. The two polyzoa are of considerable interest, one as representing a new genus and species of uncertain affinities and the other as being identical with a British species. Both species belong to the suborder Ctenostomata.



Platypolyzoon investigatoris on telson of *Squilla investigatoris*, $\times 17$.

Triticella koreni, G. O. Sars.

T. koreni, Hincks, *Brit. Mar. Polyzoa*, p. 545, pl. xlv. figs. 8—10; pl. lxxx, fig. 6, and text-figure No. 31.

The carapace, mantidiform limbs and telson of a specimen of *Squilla fasciata* from the Bay of Tokyo, Japan, lent by Prof. K. Kishinouye, bear numerous little tufts of a polyzoan which appears to be in every way identical with the above-mentioned species. Hincks states that in European waters it is found on various crustacea, from between tide-marks to very deep water.

PLATYPOLYZOON, gen. nov.

Zoarium consisting of flattened, recumbent zoecia growing directly one from another in linear series with occasional lateral

(also recumbent) branches originating from lateral buds; sometimes more than one lateral bud on each side of a zooecium.

Zooecia membranous, hyaline, oval, very flat but with the margin supported by vertical chitinous rods; orifice situated at the summit of an elongate but slender vertical tubule which rises from near the anterior end of the dorsal surface of the zooecium. Parietal muscles consisting of short vertical strands situated round the periphery of the zooecium within the chitinous rods. Gonads arranged round the margin of the zooecium just within the parietal muscles.

Polypide elongate and slender; tentacles not numerous; no gizzard or cardiac antechamber.

Platypolyzoon investigatoris, sp. nov.

Zoarium with comparatively few lateral branches, forming a sparsely ramifying figure; no branches with subsidiary branches observed; rarely more than one lateral bud on each side of a zooecium, not more than two observed; the terminal bud of a branch sometimes drawn out into an elongate, slender process.

Zooecia oval, measuring about 1.0 mm. by 0.5 mm.; colourless except for the chitinous rods, which have a yellowish tinge. Orificial tubule of great relative length, very slender. Parietal muscles forming short, vertical, somewhat fan-shaped strands with the narrow end arising from the inner surface of the ventral wall and the broad end attached to the dorsal wall of the zooecium.

Polypide with the tentacles very long; the stomach slender and elongate; the retractor muscles delicate.

Habitat, etc.—Attached to the telson of two of the type specimens of *Squilla investigatoris*, Lloyd, from off the S. W. Coast of Arabia; 110 fathoms (R.I.M.S. "Investigator").

The affinities of the new genus and species are somewhat doubtful. The zooecia have a superficial resemblance to those of *Flustrella* and it is possible that *F. flabellaris*, Kirkpatrick,¹ from the China Sea may be related. Nothing, however, seems to be known about either the method of budding or the anatomy of Kirkpatrick's species. The structure of the orifice and the method of budding of *P. investigatoris* differ greatly from those found in *F. hispida* (Fabr.), the type-species of its genus, and possibly the former is related rather to *Arachnidium*. from which, however, it differs in that the zooecia are not separated by stolon-like processes. This is perhaps a difference of no great morphological importance, for the terminal bud in the branches of *P. investigatoris* sometimes takes the form of a slender elongate process. The form of the zooecia and the general appearance of the zoarium are strongly reminiscent of the freshwater genera *Arachnoidea* and *Hislopia*,² and indeed the relationship between

¹ *Ann. Mag. Nat. Hist. (6)*, vol. v. p. 23, pl. iv, figs. 3, 3a (1890).

² Annandale, *Rec. Ind. Mus.*, vol. vi. p. 198 (1911).

Arachnidium and the new genus may be strictly compared with that between these two genera; but the structure of the polypide differs from that of any of the Paludicellina and the method of budding, although superficially similar, may be distinguished at once by the fact that more than one lateral bud is sometimes produced on the same side of a zooecium. On the whole, therefore, I am inclined to regard *Platypolyzoon* as allied to *Arachnidium*.

A word may be said about the function of the chitinous rods that surround the zooecium in the new species. They appear to be capable of being straightened into erect supports, but in most of the zooecia in the type specimens are bent in a >-like manner, so that the dorsal wall of the zooecium is closely approximated to the ventral. This appears to be due to the fact that the parietal muscles are strongly contracted and is possibly connected with the extrusion of the tentacles of the polypide, which in nearly all the zooecia are in a semi-extruded condition.

No. 2.—ON A NEW GENUS AND SPECIES OF
MARINE PARASITIC GASTROPOD
FROM THE INDIAN REGION.

By H. B. PRESTON, F.Z.S

Epistethe, gen. nov.

Shell imperforate, subhyaline, vitroriform with sunken spire, the last whorl overhanging the penultimate.

Epistethe gonodactyli, sp. nov.

Shell thin, semi-transparent, sub-covneous, ovate, depressed, greyish white above, shading to brownish yellow on the last whorl; whorls 3, rapidly increasing, the first minute, the second overlapped and partly concealed by the last which is, towards the latter portion, developed above into a membranaceous infra-sutural projection, and is proportionately very large, marked with radiate creases and sculptured with microscopic, silky, arcuate, transverse striae; suture impressed in the earlier, cavernous in the later stage; base of shell somewhat convex; columella callously, outwardly margined, descending in a curve; labrum thin, membranaceous, receding below, very slightly projecting in front; aperture depressedly sub-ovate. Alt. 3.5, diam. max. 6.5, diam. min. 5 mm. Aperture: alt. 3.5 (nearly), diam. 3.75 mm.

Habitat.—Parasitic on the ventral surface of a Stomatopod crustacean, *Gonodactylus chiragra*, from shallow water in the Persian Gulf; also found on specimens of the same species from the Andaman Islands.